SPECIES SNAPSHOT

A 2022 status update for South Carolina's saltwater species

RED DRUM

Red drum (*Sciaenops ocellatus*), often referred to as "spottail bass" or "redfish," are the most commonly targeted sportfish in coastal South Carolina waters. Anglers can keep up to two red drum per person and six per boat per day within the 15-23" slot limit in state waters (regulations last changed by legislature in 2018). Possession in federal waters is prohibited.

SIZE

Juvenile red drum fall within the 15-23" slot size at approximately one to two years of age and typically weigh between one and five pounds. The state record for South Carolina was a 75-pound fish caught in 1965.

AGE

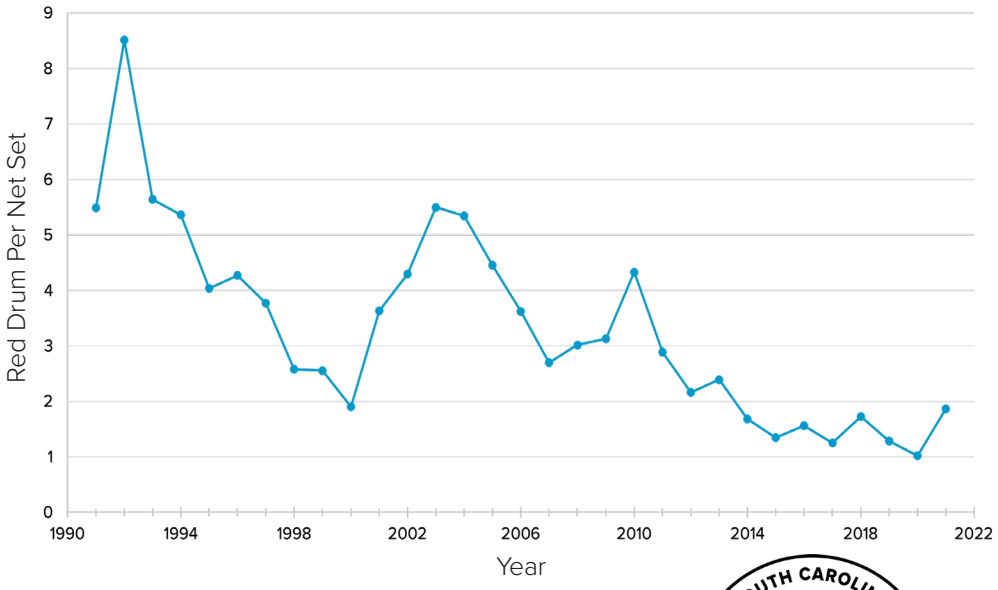
Red drum mature between 3-5 years of age, and South Carolina's oldest recorded red drum was 41 years old. The larger the fish, the more eggs she produces, making the health of our largest and oldest red drum critically important.

HABITAT

Juvenile red drum mainly inhabit estuaries, including shallow tidal creeks and salt marshes. Adults inhabit the open ocean for much of the year but take up residence in coastal sounds and inlets during late summer and fall, when spawning occurs.

Red Drum Numbers Have Declined in SCDNR Surveys Over Time

- The year 2020 marked an all-time low in the average number of red drum caught by SCDNR biologists in the trammel survey (1.0 fish per net set). The 10-year average is 1.7 red drum per net set.
- This graph represents just one of many data sets used to determine the health of SC's red drum population.



FOR MORE INFORMATION

South Carolina Department of Natural Resources
Marine Resources Division | marine@dnr.sc.gov | 843-953-9300

SPECIES SNAPSHOT

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RED DRUM

How do we get these numbers?

- Working from customized boats, SCDNR biologists conduct three different survey types in every major South Carolina estuary to capture and study red drum at every stage of its life cycle.
- Since 1990, the collection of this data has allowed biologists to track the health of our state's red drum by keeping tabs on population numbers, size, age and other biological information over time.
- SCDNR biologists also maintain a nationally recognized stocking program for red drum and have released an average of one million young fish annually over the last 10 years in studies designed to tell us more about their life history.

Many factors impact red drum numbers

FISHING PRESSURE

As our coastal population has grown, so too has angling pressure. Between 1991 and 2021, the number of fishing trips in state waters grew by 135%. Even though anglers release most red drum, ~8% still die due to capture stress.

ENVIRONMENTAL CONDITIONS

Red drum spawn during a short window in August and September, and the environmental conditions during this window can have a great impact on the number of larvae that survive.

HABITAT AVAILABILITY

Young red drum rely on small tidal creeks and saltwater marshes. The availability and quality of these waters, which are vulnerable to coastal development, are critical to sustaining our red drum population.

You can help red drum in South Carolina

HANDLE WITH CARE

When catch-and-release fishing, always handle fish with wet hands and/or a rubber-coated net. Minimize the time that fish spend out of the water and revive them before release.

USE THE RIGHT RIG

When targeting large, adult red drum (sometimes called "bull reds"), minimize gut hooking by using circle hooks (at least size 9/0) and a short leader/fixed-weight rig.

BUY A FISHING LICENSE

Even if you don't fish, consider purchasing a fishing license. Saltwater license fees help fund research and protection efforts for red drum and other saltwater species.

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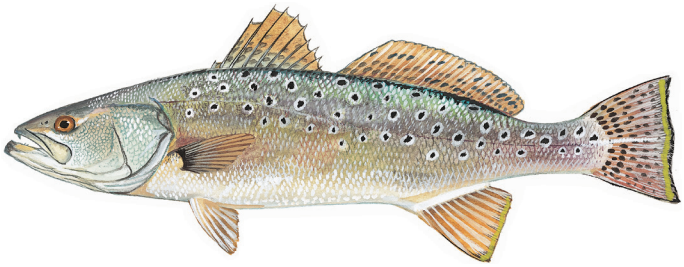
SEATROUT

Spotted seatrout (*Cynoscion nebulosus*), also known as "speckled trout," are one of the most popular saltwater fish in South Carolina – but they're not true trout. These members of the drum family can be found in saltwater creeks, rivers and estuaries throughout the year. Anglers can keep up to 10 seatrout per person per day with a minimum size of 14 inches total length.



AGE

Spotted seatrout mature at roughly one year. The oldest seatrout in South Carolina was nine years old, although most fish captured are four years or younger. Spotted seatrout spawn in groups during evenings from April to September.

SIZE

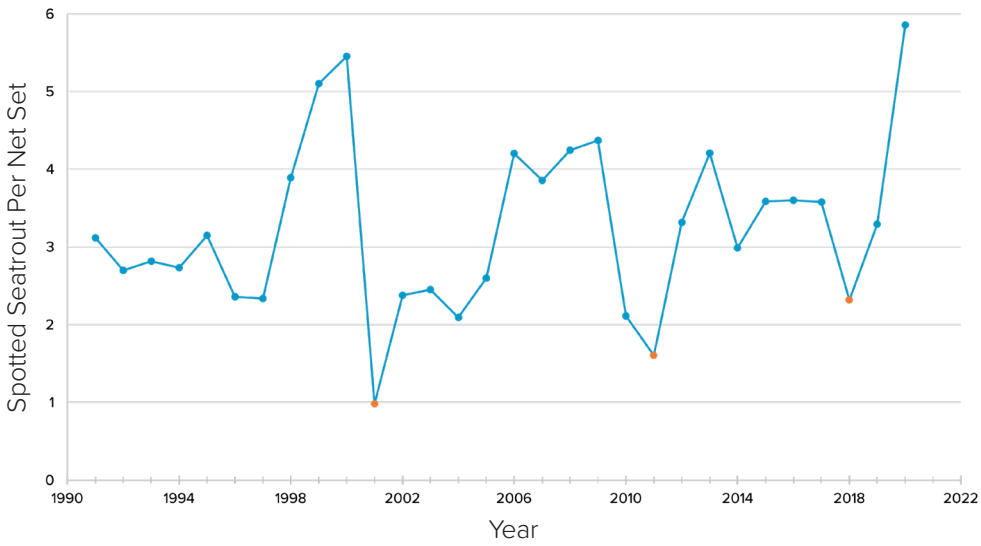
Females grow faster than males and typically reach the 14" minimum harvest size within two years. The catch of larger fish (>20") is dominated by females. The state record was an 11-lb, 13-oz fish caught in Murrells Inlet in 1976.

HABITAT & LIFE CYCLE

Young seatrout use tidal creeks and saltmarshes as nursery areas where they can avoid predators and find prey. Within their first year, they move into larger creeks, rivers, and bays, where they spend the rest of their lives.

Seatrout Numbers Drop During Cold-Kill Events but Can Rebound Rapidly

- Spotted seatrout populations in South Carolina are heavily influenced by winter kills, when waters drop below a critical level and kill large numbers of seatrout (these years in orange at right).
- The number of spotted seatrout caught per trammel net in the 2021 sampling season (3.1 fish/set) was similar to the ten-year average.



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SEATROUT

How do we get these numbers?

In gray are areas of the coast covered by the SCDNR trammel net survey, one of two programs that targets seatrout.

- South Carolina Department of Natural Resources biologists collect the majority of the state's spotted seatrout information through two main sampling programs: a trammel net survey that targets higher salinity areas of estuaries and an electrofishing survey that looks at lower salinity areas in the upper reaches of tidal rivers. Collectively, these surveys allow researchers to look at seatrout of all ages.
- Electrofishing and trammel net data have been collected for over 20 and 30 years, respectively, allowing biologists to follow long-term trends in local seatrout populations and collect information on life history.

Cold weather events are a major driver of spotted seatrout numbers

While many factors impact the population health of spotted seatrout in South Carolina, (including habitat quality and fishing pressure), cold water events known as "winter kills" are the largest driver of population size. When temperatures drop below a critical level (usually the low to mid-40s Fahrenheit), spotted seatrout can die in large numbers or become so cold stunned that they become easy prey for dolphins, birds and other predators. You can see examples of these drops in orange on the previous page's graph – there were cold weather events in 2001, 2011 and 2018. Fortunately, with the assistance of anglers practicing catch and release, sea trout numbers can rebound within a few years.

You can help spotted seatrout in South Carolina

CATCH & RELEASE AFTER COLD KILLS

After winter cold kills, anglers who release seatrout through the spawning season (Apr.-Sep.) help the population rebound more quickly.

HANDLE WITH CARE

Spotted seatrout are soft-bodied and lack the thick scales that help protect some fish. As a result, they must be handled gently to increase their chances of survival upon release.

BUY A FISHING LICENSE

Even if you don't fish, consider purchasing a fishing license. Saltwater license fees help fund research and protection efforts for seatrout and other saltwater species.

SPECIES SNAPSHOT

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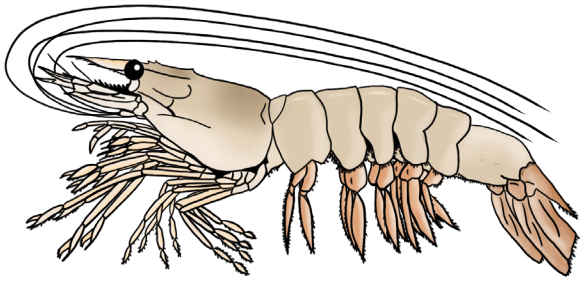
SHRIMP

Shrimp are South Carolina's favorite seafood and support its most valuable fishery. South Carolinians can generally buy or catch fresh, local shrimp from May through the end of the fall, depending on water temperatures. Shrimpers target two main shrimp species: white shrimp (*Litopenaeus setiferus*), of which there are two 'crops' per year, and brown shrimp (*Farfantepenaeus aztecus*).



AGE

Shrimp seldom live more than a year. Depending on water temperatures, white shrimp spawn in the spring and early summer, while brown shrimp spawn during the fall. A single female can produce up to 1,000,000 eggs at a time.

SIZE

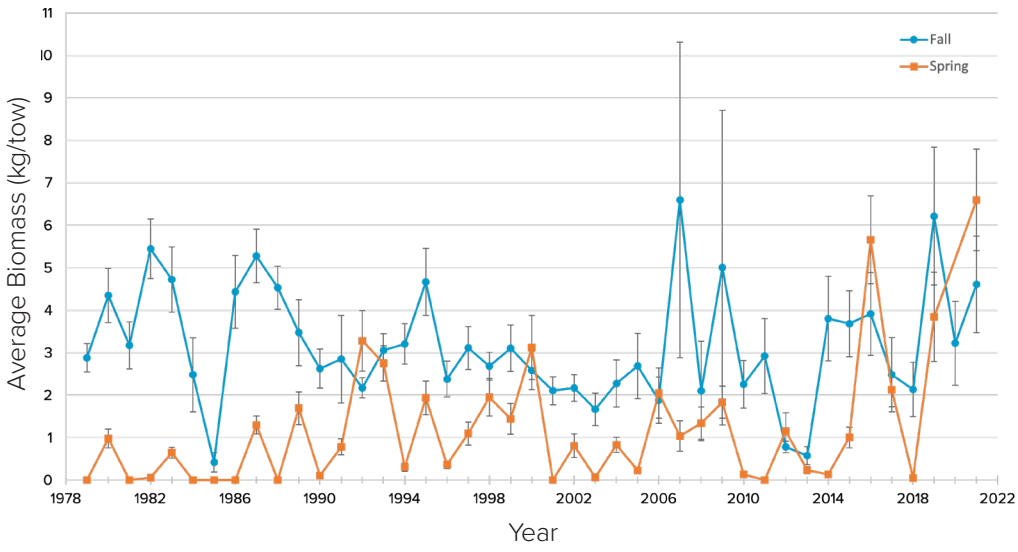
Spring white shrimp, or roe shrimp, are typically the largest of the year, reaching up to six inches from head to tail. Shrimp numbers can fluctuate drastically in response to environmental conditions, but they also bounce back quickly.

HABITAT & LIFE CYCLE

Adult shrimp primarily live offshore. Adult females spawn close to shore, and their larvae will go through as many as ten stages before migrating to salt marsh tidal creeks, where they will spend two to three months growing to maturity.

Shrimp Numbers Have Remained Stable in SCDNR Surveys Over Time

How to read this graph: South Carolina has two main shrimp seasons per year, which are shown here in orange and blue, with variability shown in gray). Although average shrimp numbers (measured here in weight or biomass) can vary widely from year to year, the long-term averages have remained stable or increased since 1978.



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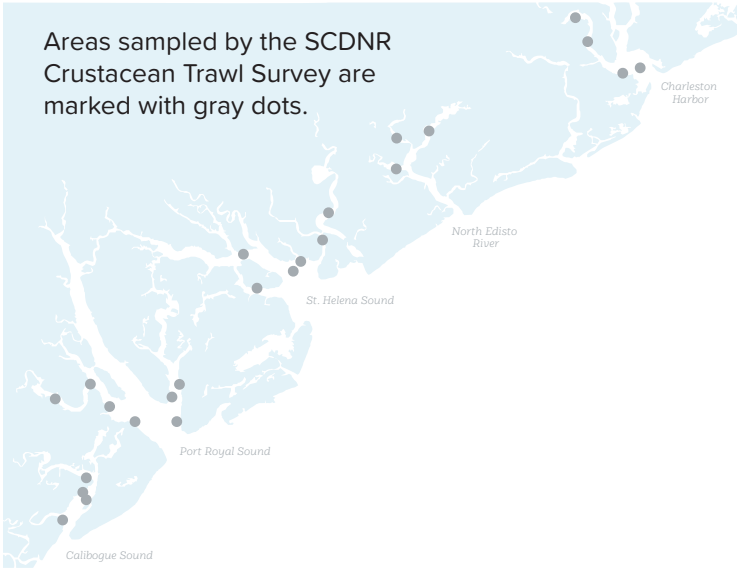
SHRIMP

How do we get these numbers?



- Since the late 1970s, SCDNR biologists have trawled in South Carolina's five largest estuaries to monitor abundance, size, reproductive status and disease/ parasite load of the shrimp they catch.
- Today, aboard the R/V *Silver Crescent,* the team samples Charleston Harbor and the Ashley River monthly and other estuaries quarterly.
- Each spring, biologists look at the progress of shrimp reproduction to help officials determine when it's safe to open the commercial shrimp harvesting season.

Many factors impact shrimp numbers

DISEASE

Black gill syndrome first appeared in the late 1990s. Caused by a protozoan, it does not kill shrimp directly but darkens their gills (an immune response) and makes them more vulnerable to predators. It poses no risk to humans.

ENVIRONMENTAL CONDITIONS

Shrimp are highly susceptible to temperature extremes and salinity levels. Their population numbers can fluctuate dramatically based on weather events such as cold snaps and drought.

HABITAT AVAILABILITY

Young shrimp need clean water and high-quality habitat (tidal creeks and saltwater marshes) to survive to adulthood. Coastal development increases runoff and freshwater influx, which can harm shrimp nursery areas.

You can help shrimp in South Carolina

EAT LOCAL SHRIMP

Shrimpers in South Carolina are subject to environmental regulations that make their product far more sustainable than imported shrimp. Support this homegrown industry.

USE RIGHT MESH SIZE

Marine resources should never be wasted. If you are catching shrimp too small to eat or use, switch to a larger net mesh size to give younger shrimp time to reach maturity.

BUY A FISHING LICENSE

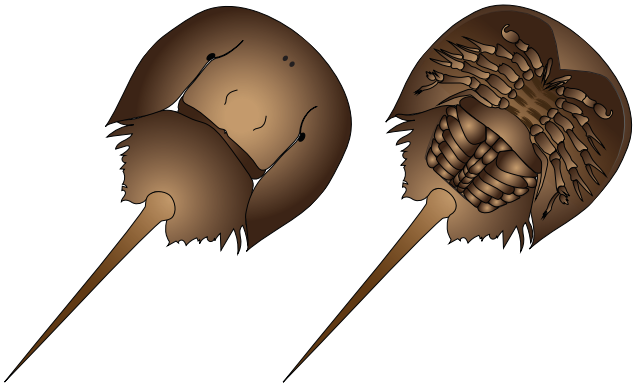
Even if you don't fish, consider purchasing a fishing license. Saltwater license fees help fund research and education on shrimp and other saltwater species.

SPECIES SNAPSHOT

A 2022 status update for South Carolina's saltwater species

HORSESHOE CRAB

The Atlantic horseshoe crab (*Limulus polyphemus*) is an unusual marine arthropod whose family has remained relatively unchanged for hundreds of millions of years. They play an important role in South Carolina's coastal environment, where their eggs provide nutrients to shorebirds, as well as in biomedicine, where an extract of their blood is used to detect toxins.



SIZE

Young horseshoe crabs, or trilobites, are the size of a pinhead at birth. After molting over a dozen times, the crabs grow to roughly the size of a dinner plate. Adult females are noticeably larger than males.

AGE

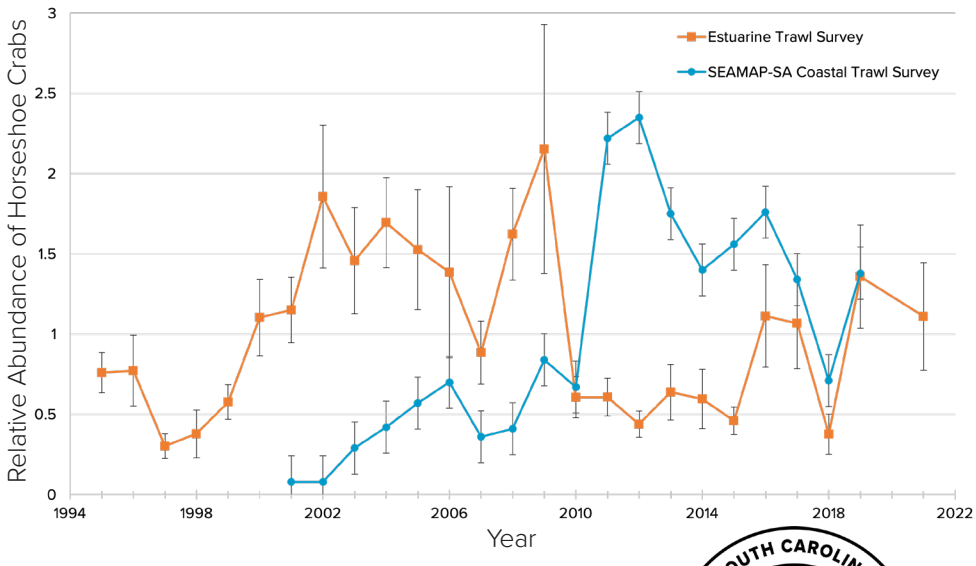
Horseshoe crabs take nearly a decade to reach reproductive age and can live about 20 years. The group to which they belong is an estimated 450 million years old, making them about twice as old as the earliest dinosaurs.

HABITAT

Adult horseshoe crabs move to shallow waters each spring and spawn on sandy beaches and in salt marshes. Outside of spawning season, horseshoe crabs live and forage in deeper waters offshore.

Horseshoe Crab Numbers in SCDNR Surveys Have Remained Stable Over Time with Fluctuating Habitat Use

- How to read this graph: Each data point has been standardized in reference to the long-term average. Error bars show variability in the data.
- The survey trends at right may be a result of alternating habitat usage; in years horseshoe crab numbers were high offshore, they were lower close to shore (and vice versa).



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SPECIES SNAPSHOT

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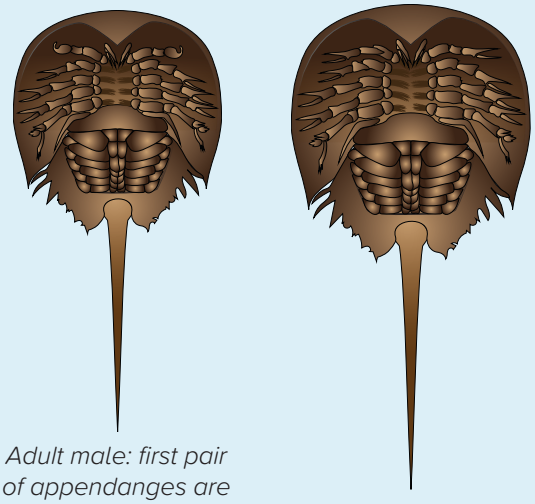
HORSESHOE CRAB

How do we get these numbers?

How to identify male vs. female horshoe crabs



Adult male: first pair of appendanges are hook-like. Body up to a third smaller than adult females.

Adult female: first pair of appendanges has pincers.

- SCDNR biologists conduct three long-term surveys that look at horseshoe crabs in three different geographic areas of the coast (rivers/estuaries, estuaries/sounds and in the open ocean).
- Survey estimates of estuarine populations can fluctuate greatly from year to year, which is why SCDNR researchers use multiple data sources to determine the status of a species – and why it is signficant that each of the surveys captures horseshoe crabs in a different geographic area.
- The SEAMAP (Southeastern Monitoring & Assessment Program) Coastal Trawl Survey expands our data set beyond South Carolina by sampling shallow coastal waters from North Carolina to northern Florida. This survey also looks at average body size, which can be an indicator of population health. Horseshoe crab size has remained stable in SCDNR surveys over time.

Other SCDNR research project findings

GENETICS

A 2014 genetic survey of SC's adult horseshoe crabs suggested that there is just one population within the state and found little evidence for inbreeding, indicating a relatively healthy adult population of horseshoe crabs.

MORTALITY ESTIMATES

A 2017 research project that simulated the harvest, transport and pre-bleeding holding conditions of horseshoe crabs found that death associated with the process was ~11%, which was consistent with previous studies (8%-20%).

SPAWNING HABITAT

Recent SCDNR research has shown that salt marshes represent a much greater source of horseshoe crab spawning activity than previously realized, with spawning densities and egg counts on par with sandy beaches.

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BLUE CRAB

The blue crab (*Callinectes sapidus,* 'beautiful swimmer') is a cherished resident of South Carolina waterways that humans have enjoyed eating for millenia. Blue crabs support one of the state's largest and oldest fisheries and play an integral role in the coastal food chain as both predator and prey.

AGE

Blue crabs can live up to six years, but most are harvested before reaching the age of two. Crabs reach maturity between 12 and 18 months. Crab numbers can fluctuate widely from year to year depending on environmental conditions.

SIZE

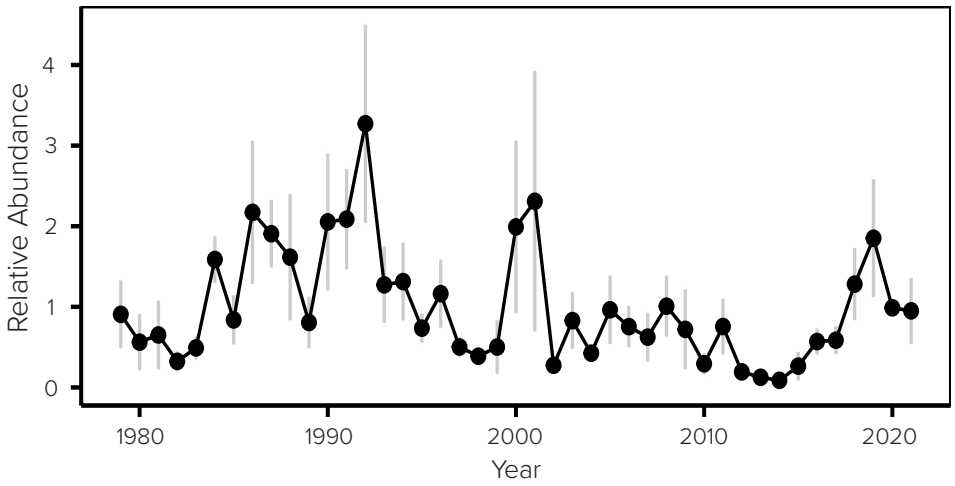
Mature blue crabs (males are sometimes called *jimmies* and females *sooks*) can reach eight inches from 'point to point' of the shell, but most range from five to six inches wide at maturity. Crabs must be at least five inches wide to harvest.

LIFE CYCLE & HABITAT

Mating occurs in upstream, brackish waters, after which females migrate downstream to release their eggs in saltier habitats. Larvae pass through several stages in the ocean before returning to the estuary as juvenile crabs.

Blue crab numbers have increased recently after a period of decline

- Legal-sized crab numbers in our estuarine trawl survey were close to the long-term average in 2021 (shown at right).
- How to read this graph: Each data point has been standardized in reference to the long-term average. Error bars in gray show variability in the data.



- In recent years, legal-sized crabs caught in SCDNR's crab potting survey (conducted in the fall, when adult crabs move out of creeks and into more open waters) have been falling below average (graph not shown).
- Encouragingly, the size of the average blue crab has not declined over time.

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BLUE CRAB

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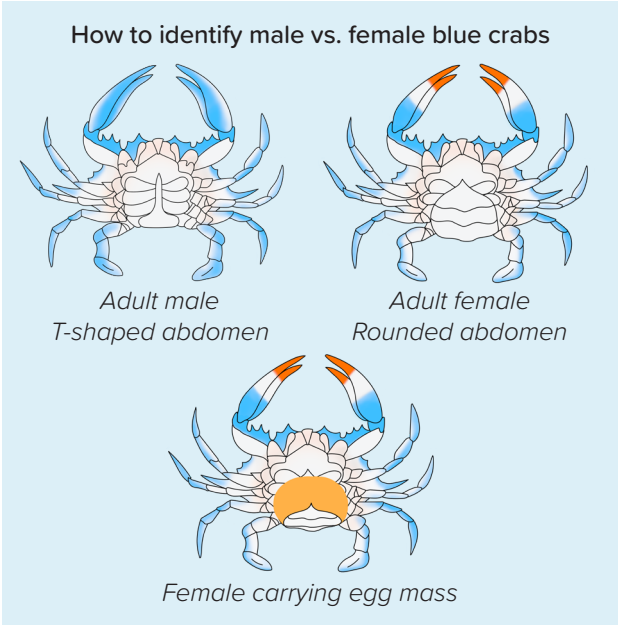

- Since the 1980s, SCDNR staff have caught and studied blue crabs in habitats ranging from shallow tidal creeks to open water along the South Carolina coast, collecting data such as size, life stage and sex to keep tabs on the population.
- Today, these efforts include monthly sampling in the Charleston region, focused sampling of adult crabs in the fall across a broader geographic range and trawl surveys from Charleston to Calibogue Sound during key months. Officials need to use all of these data sets -- and more -- to gain the most accurate picture of a population.
- More detailed information on recreational and commercial fishing efforts would allow SCDNR staff to understand the effects of these fisheries on the population.

Many factors impact blue crab numbers

FISHING PRESSURE

The ~350-person commercial fishery has remained stable, but recreational crabbing has grown (~45,000 crabbers) as the coastal population has increased. Crabbing is open year-round in SC.

ENVIRONMENTAL CONDITIONS

Environmental conditions and events such as tropical storms and drought can have a dramatic impact on South Carolina's blue crab population numbers from year to year.

HABITAT AVAILABILITY

Blue crabs rely on many different environments throughout their lives, making their habitat needs complex. They need high-quality salt marsh, river and open ocean habitats to survive.

You can help blue crabs in South Carolina

FOLLOW REGULATIONS

Release all undersized crabs (<five inches wide) and any females with egg masses. Anglers may fish up to two crab pots with a recreational fishing license.

CRAB RESPONSIBLY

Use crab pots with escape holes and never leave your pot in the water for more than five days. Abandoned pots continue to catch and kill marine animals.

BUY A FISHING LICENSE

Even if you don't crab, buying a fishing license is another great way to support South Carolina's blue crabs through funding of research and education.